THURSDAY, OCTOBER 25, 1883

A SCIENTIFIC CATALOGUE

Bibliotheca Historico-Naturalis et Mathematica. Lager Catalog von R. Friedlander und Sohn. (Berlin, 1883.)

LIKE enthusiastic physicians who are charmed with a "splendid case"—of Asiatic cholera, it may be—which illustrates or disproves some theory which has engaged their attention, there are philologists who are so interested in tracing the growth of variations among dialects by watching for and marking fresh changes in a parent language under different circumstances that they do not consider what an inconvenience this polyglot condition of society is, and what a length of time and amount of labour all but a gifted few have to expend in order to learn even three or four of the principal languages of ancient and modern times. Some considerations lead us to hope that, following many other benefits that scientific study has unweeningly brought to man, a unification of languages also may be in store.

As science spreads and makes way, the more indispensable to inquirers in each country becomes the knowledge supplied by the phenomena or the intellect in all others. Knowledge cannot be largely produced by a kind of secret manufacture of which one country or one race only knows the process. It must be *patent* in the older sense! Inductive science requires such a variety of observation of positive fact, and is so largely helped by comparison of working theories, that hardly any subject can be thoroughly studied without consulting both the facts noted by observers and the hypotheses started by philosophers in other countries. Commerce has, no doubt, brought a large number of men from many parts of the world into oral communication, but they are not of the class who have the means or the ambition to guide a language, as a majority of scientific writers are,—men who must largely control the education of their country.

But we have not arrived anywhere near the harbour of a common language yet. The first step has no doubt been taken by the agreement to use Greek roots for all scientific terms, so many of which keep forcing their way into familiar language through the utilitarian purposes connected with them; and science may claim its share also in the recent and increasing disuse of the old black-letter type by the Germans, and the adoption of the more general Arabic character—as in this publication, to which we are much pleased to call attention as a step towards counteracting the inconvenience now laboured under through the results of the tendency of languages to diverge. We have in England a fair sprinkling of libraries in which tolerably complete collections of English works are to be found, and the narrow boundaries of our crowded population make the use of them pretty practicable to the working student. But only a very few indeed of these contain at all complete collections of foreign publications; and, without doubt, the cosmopolitan studies of the Germans, their numerous universities—each, as Prof. Ray Lankester reminded the British Association, with a Government endowment sufficient at least to allow an earnest worker to follow up any pursuit which has raised his enthusiasm, and each as a matter of course engaged to some extent in original research—make their country the home and the market for such a collection of books as this. The special characteristic of this list is that it is restricted to science. The publisher was a successful student at the University of Berlin, where natural science was his favourite branch An American friend persuaded him to continue his studies at one of the United States Universities. He made many friends there, but his father's death brought him back to Europe, and the large family of them which were left required him to give close attention to business. His knowledge, however, of science, and his connections in the United States, enabled him to get, and to execute with more than usual success, large orders for the different great libraries as they were successively founded there. He made it the work of his life to form as complete a collection as possible of all scientific books and publications, and the results are shown in this book, printed with a care which foreign writers would seldom find bestowed upon their names and upon the titles of their books in an English printed catalogue, and, although containing about 1250 pp., deserving to be classed as a handy volume. Nearly 50,000 entries of publications on science only are made, with the most full particulars as to illustrations, size, date, &c. These are divided into 169 catalogues of works upon as many different subjects, upon which very elaborate classification we must remark that while no doubt suiting any consulters who only wanted a choice of books upon a subject, the dividing and classifying must add immensely to the labour expended upon it, and nevertheless reduce the value of the catalogue to the very students for whose benefit we are told that the compilation was made, viz. workers who wanted to know what upon each subject had been written in all scientific countries. For, as any one who glances down the index of subjects would see, there are very many books which are equally appropriate to half a dozen of them; and, since the same work is not repeated in list after list, it is necessary to consult an unknown number of them before the catalogue has answered the purpose intended. Of course it is difficult also to bring so general a list down to any date close upon that of publication, important as that is to all scientific writers especially, and the omissions which may be traced in this great collection are a striking evidence of the wealth of modern scientific literature.

THE FISHERIES OF THE ADRIATIC

The Fisheries of the Adriatic and the Fish thereof. A Report of the Austro-Hungarian Sea-Fisheries; with a Detailed Description of the Marine Fauna of the Adriatic Gulf. By G. L. Faber, Her Britannic Majesty's Consul, Fiume. (London: Bernard Quaritch, 1883.)

NO comprehensive work has till now appeared in English on the sea-fisheries of the Austro-Hungarian Empire, and though Mr. Faber modestly refers to his volume as a Report meant to pave the way for a more general work on the subject, yet we cannot but regard it as a very valuable history of the marine fauna and fishing interests of the Adriatic. The volume contains a systematic list of the fishes, including the freshwater forms of the watershed of the northern and eastern shores of the

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Adriatic, which has evidently been compiled with a great deal of care. The Italian local names in use on the Adriatic coasts and the Croatian names are also given; those of the latter dialect for the first time.

The author commences with a short description of the Adriatic Gulf. Its tides are inconsiderable, the normal rise and fall being only 1½ foot, and only one ebb and flow in twenty-four hours. The currents, however, are numerous, acting as modifiers of the effects of climate and influencing by their agency the diffusion of marine life. The nature of the sea bottom varies immensely, giving abundant choice to the various species of fish. The sea water proper is, in respect of the degree of saltness, about the same as the Atlantic under the tropics, but springs abound in some regions to such an extent as to render the surface water thereof quite fresh. With a for the most part moderate depth, yet 100 fathoms is reached near the islands of Zuri and Scoglio Pomo, and near the island of Meleda the bed has not been reached at 500 fathoms.

In the second chapter we find a history of the present state of the fisheries. The demand now exceeds the supply. The decrease is ascribed to the effects of trawling, though without the slightest reason. One great drawback to the preserving of fish seems to be the State monopoly of salt. Full details as to the fishing of Italian boats in Austrian waters are also given. In the third chapter the various fishing districts and their peculiar products are detailed; besides fish, sponges are obtained in the vicinity of Crapano and coral near Zlarin. Pola is the best district in Istria for the tunny; it is now a town of 20,000 inhabitants, in 1856 it was a village of but 600 inhabitants. In value the sardine fishery holds the first rank, being computed at about 40,000*l.* a year, while the tunny fishery yields about 15,000*l.*, and the red mullet take is calculated at 12,000*l.* The average annual value of squid (*Loligo sepiola*) captured is 12,000*l.* The various sorts of craft used in fishing are described and figured in Chapter IV., with calculations of their value, number of crew, &c. Nets, basket traps, fish weirs and ponds are treated of in Chapter V. The tanning process is effected by a solution of the bark of *Pinus maritimus* in sea water, but for very fine nets the leaves of the pistachio, shumac, myrtle, and heath (*Erica vulgaris*) are used. Chapter VI. describes the hooks and lines used. Chapter VII. treats of the names applied to fishermen and various modes of fishing. The fish markets of the Istrio-Dalmatian coast are described in Chapter VIII. The well-defined sorts which appear in these markets may be given at ninety fishes, often uniting under one name various species of the same genus, thirty mollusks, and ten crustacea, but in addition there will be found sea urchins (Echini), an actinia (*A. cereus*), and such an ugly form as *Ascidia microcosmus*. The methods of curing and cooking fish are detailed in Chapter IX. The curing of pilchards in oil after the fashion of sardines seems to have met with a well-earned success, but the tins have to be imported from England and the oil from Italy or France. Chapter X. is devoted to statistics; those of the Austrian sea-fisheries are compiled with commendable exactitude and completeness, and are regularly published in the *Austria*, the statistical periodical of the Austrian Ministry of Commerce. We wish that we could say the same for our British sea-fisheries. The very valuable appendix contains a catalogue of the Adriatic marine fauna, and the local names given to the best known forms. The typography and illustrations of this handsome volume leave nothing to be desired even in these days of luxurious editions. We agree with Dr. Günther in believing that to the great number of persons who annually leave our shores for the Mediterranean in quest of sport and recreation this work will serve as a guide to a field of pleasant research, hitherto much neglected. It is also a most important contribution to the knowledge of the economic resources of the sea-coast and rivers of a deeply interesting country, and we hope that one of the results of its publication may be to greatly develop a practical interest in the fish treasures of the Adriatic Gulf.

OUR BOOK SHELF

Practical Electrical Units Popularly Explained. By James Swinburne (late of J. W. Swan and Co., Paris; late of Brush-Swan Electric Light Company, U.S.A.). (London and New York: E. and F. N. Spon, 1883.)

THE title of this book will doubtless lead those to whom "ohms," "amperes," "farads," &c., seem so mysterious to hope that all difficulty in understanding what they are and whence they come will be removed. They will find, however, that though the relations between the practical units are given very clearly, and are illustrated by many numerical examples, yet the definitions are "definitions in a circle." Mr. Swinburne has neither shown how the C.G.S. units are derived, nor has he even given the relations of the practical to the C.G.S. units.

The mechanical units are fully described on the English system, which perhaps is better suited for purposes of explanation than the French, as being more familiar to most people. In speaking of the term "electric fluid," Mr. Swinburne uses this rather dangerous language: "Electricity can be looked upon as an imponderable fluid which, like a gas, is compressible, the volume varying inversely as the pressure, so that if the pressure be doubled the volume is halved." It does not appear at once to what this refers, but six pages on the meaning is explained, for we read: "It may seem strange at first that there should be a unit of quantity, and another of capacity to hold that quantity, when we do not need to call a pint measure by one name and the quantity of liquid it holds by another. It must be remembered that electricity corresponds to a compressible fluid; and though the pint measure holds, or is supposed to hold, a pint of liquid, the amount of gas it would contain would depend on the pressure." This is one of the many excellent concrete analogies by which Mr. Swinburne assists his readers to understand those actions which at first seem to many so unintelligible.

It is not clear in what way the following note will assist mechanical engineers or any one else to understand the nature of electromotive force. "Force is generally looked upon as what tends to move matter, and the term 'electromotive force' seems therefore a misnomer at first sight. Science does not know what electricity is, but it is supposed to be a kind of motion of molecules or of ether very closely related to heat and light. Science knows little about molecules or ether, and does not even know if there are such things, but thinks the next thing to understanding anything is naming it."

The book is not meant to be a scientific work, but is intended to help mechanical engineers and others to understand the units with which they may have to deal; for this purpose the simple language and the numerous examples will be sure to make it succeed. C. V. B.

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